



HACETTEPE ÜNİVERSİTESİ

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GENEL SEMİNER



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Determination of Some Graph Dimensions Obtained From Special Algebraic Structures

The aim of this study is to determine the dimensions of certain graphs. The graphs discussed in this talk will be taken as simple and connected [8]. More specifically, the main objective of this talk is to partially address the open problem of “characterizing all graphs having infinite multiset dimensions” through graphs obtained from special minimal (efficient or inefficient) monoid presentations.

For the algebraic part of this work, references [1,2] may be recommended. On the other hand, all desired details about specific graph dimensions, such as their types and properties, etc., can be found in [5–7,9–12], for example.



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References

- [1] F. Ates and A. S. Cevik, Minimal but inefficient presentations for semidirect products of finite cyclic monoids, Groups St. Andrews 2005, Volume 1, LMS Lecture Note Series 339, 170-185, 2006.
- [2] A. S. Cevik, Minimal but inefficient presentations of the semi-direct products of some monoids, Semigroup Forum 66, 1-17, 2003.
- [3] A. S. Cevik, Matching some graph dimensions with special presentations, Montes Taurus J. Pure Appl. Math. 6(2), 78-89, 2024.
- [4] A. S. Cevik, Further results on some graph dimensions via special presentations, Montes Taurus J. Pure Appl. Math. 7(1), 1-9, 2025.
- [5] A. S. Cevik, I. N. Cangul, Y. Shang, Matching some graph dimensions with special generating functions, AIMS Mathematics, 10(4), 8446-8467, 2025.
- [6] R. Gil-Pons, Y. Ramirez-Cruz, R. Trujillo-Rasua, I. G. Yero, Distance-based vertex identification in graphs: The outer multiset dimension, Appl. Math. Comput. 363, 124612, 2019.
- [7] F. Harary, R. A. Melter, On the metric dimension of a graph, Ars Combin. 2, 191-195, 1976.
- [8] E. G. Karpuz, K. Ch. Das, I. N. Cangul, A. S. Cevik, A new graph based on the semi-direct product of some monoids, J. Inequal. Appl. 2013, 118, 2013.
- [9] S. Klavžar, D. Kuziak, I. G. Yero, Further contributions on the outer multiset dimension of graphs, Res. Math. 78, 50, 2023.
- [10] D. Kuziak, M. L. Puertas, J. A. Rodriguez-Velazquez, I. G. Yero, Strong resolving graphs: The realization and the characterization problems, Dis. Appl. Math. 236, 270-287, 2018.
- [11] A. Sebö, E. Tannier, On metric generators of graphs, Math. Oper. Res. 29(2), 383-393, 2004.
- [12] P. J. Slater, Leaves of Trees, Proceeding of the 6th Southeastern Conference on Combinatorics, Graph Theory, and Computing, Congressus Numerantium, 14, 549-559, 1975.

